IN THE CLAIMS:

Please amend claims 1, 20, 21, and 22.

1. (Currently amended) A process for the preparation of a single crystal silicon wafer having a controlled oxygen precipitation behavior, the process comprising the steps of:

selecting a wafer sliced from a single crystal silicon ingot grown by the Czochralski method comprising a front surface, a back surface, a central plane between the front and back surfaces, a front surface layer which comprises the region of the wafer between the front surface and a distance D measured from the front surface and toward the central plane, and a bulk layer which comprises the region of the wafer between the central plane and the front surface layer;

heating the wafer to an annealing temperature T_A to form crystal lattice vacancies in the front surface and bulk layers;

cooling the heated wafer from T_A to an upper nucleation temperature T_U at a rate R to form a vacancy concentration profile in the wafer wherein the peak density of vacancies is in the bulk layer with the concentration generally decreasing from the location of the peak density in the direction of the front surface of the wafer; and

~~maintaining~~ controlling cooling of the vacancy concentration profiled wafer ~~within a nucleation temperature range bounded by T_U and~~ from an upper nucleation temperature T_U to a lower nucleation temperature T_L for a nucleation duration t_n to form oxygen precipitate nucleation centers in the bulk layer that are incapable of being dissolved at temperatures below about 1150 °C and a region free of oxygen precipitate nucleation centers in the surface layer.

2. (Original) The process of claim 1 wherein T_A is in excess of about 1150 °C.

3. (Original) The process of claim 1 wherein T_A is between about 1200 and about 1400 °C .

4. (Original) The process of claim 1 wherein T_A is between about 1250 and about 1400 °C.

5. (Original) The process of claim 1 wherein T_A is between about 1300 and about 1400 °C.

6. (Original) The process of claim 1 wherein T_A is between about 1350 and about 1400 °C.

7. (Original) The process of claim 1 wherein R is at least about 5 °C per second.

8. (Original) The process of claim 1 wherein R is at least about 20 °C per second.

9. (Original) The process of claim 1 wherein R is at least about 50 °C per second.

10. (Original) The process of claim 1 wherein R is at least about 100 °C per second.

11. (Original) The process of claim 1 wherein R is between about 100 and about 200 °C per second.

12. (Original) The process of claim 1 wherein R is between about 30 and about 80 °C per second.

13. (Original) The process of claim 1 wherein R is between about 40 and about 50 °C per second.

14. (Original) The process of claim 1 wherein T_U is between about 920 and about 1090 °C, T_L is between about 890 and about 1080 °C, the difference between T_U and T_L is less than about 40 °C and generally decreases as T_U and T_L increase, and t_n is between about 10 and about 360 seconds.

15. (Original) The process of claim 1 wherein T_U is between about 970 and about 1090 °C, T_L is between about 950 and about 1080 °C, the difference between T_U and T_L is less than about 25 °C and generally decreases as T_U and T_L increase, and t_n is between about 10 and about 90 seconds.

16. (Original) The process of claim 1 wherein T_U is between about 1020 and about 1090 °C, T_L is between about 1000 and about 1080 °C, the difference between T_U and T_L is less than about 20 °C and generally decreases as T_U and T_L increase, and t_n is between about 10 and about 30 seconds.

17. (Original) The process of claim 1 wherein T_U is between about 1060 and about 1090 °C, T_L is between about 1050 and about 1080 °C, and the difference between T_U and T_L is less than about 15 °C and generally decreases as T_U and T_L increase, and t_n is between about 10 and about 15 seconds.

18. (Original) The process of claim 1 wherein, prior to the heat-treatment to form crystal lattice vacancies, the wafer is heated to a temperature of at least about 700 °C in an oxygen-containing atmosphere to form a superficial silicon dioxide layer which is capable of serving as a sink for crystal lattice vacancies.

19. (Original) The process of claim 1 comprising depositing an epitaxial layer on at least one surface of the wafer after

formation of the stabilized oxygen precipitate nucleation centers form in the bulk layer.

20. (Currently amended) A process for the preparation of a single crystal silicon wafer having a controlled oxygen precipitation behavior, the process comprising the steps of:

selecting a wafer sliced from a single crystal silicon ingot grown by the Czochralski method comprising a front surface, a back surface, a central plane between the front and back surfaces, a front surface layer which comprises the region of the wafer between the front surface and a distance D measured from the front surface and toward the central plane, and a bulk layer which comprises the region of the wafer between the central plane and the front surface layer;

heating the wafer to an annealing temperature T_A that is at least about 1300 °C to form crystal lattice vacancies in the front surface and bulk layers;

cooling the heated wafer from T_A to an upper nucleation temperature T_U that is between about 1020 and about 1090 °C at a rate R that is between about 40 and 50 °C/sec to form a vacancy concentration profile in the wafer wherein the peak density of vacancies is in the bulk layer with the concentration generally decreasing from the location of the peak density in the direction of the front surface of the wafer; and

~~maintaining~~ controlling cooling of the vacancy concentration profiled wafer ~~within a nucleation temperature range bounded by T_U and~~ from an upper nucleation temperature T_U to a lower nucleation temperature T_L that is between about 1000 and about 1080 °C wherein the difference between T_U and T_L is no greater than about 20 °C and generally decreases as T_U and T_L increase for a nucleation duration t_n that is between about 10 and about 30 seconds to form oxygen precipitate nucleation centers in the bulk layer that are incapable of being dissolved at temperatures

below about 1150 °C and a region free of oxygen precipitate nucleation centers in the surface layer.

21. (Currently amended) A process for the preparation of a single crystal silicon wafer having a controlled oxygen precipitation behavior, the process comprising the steps of:

selecting a wafer sliced from a single crystal silicon ingot grown by the Czochralski method comprising a front surface, a back surface, a central plane between the front and back surfaces, a front surface layer which comprises the region of the wafer between the front surface and a distance D measured from the front surface and toward the central plane, and a bulk layer which comprises the region of the wafer between the central plane and the front surface layer;

heating the wafer to an annealing temperature T_A that is at least about 1350 °C to form crystal lattice vacancies in the front surface and bulk layers;

cooling the heated wafer from T_A to an upper nucleation temperature T_U that is between about 1060 and about 1090 °C at a rate R that is between about 40 and 50 °C/sec to form a vacancy concentration profile in the wafer wherein the peak density of vacancies is in the bulk layer with the concentration generally decreasing from the location of the peak density in the direction of the front surface of the wafer; and

~~maintaining~~ controlling cooling of the vacancy concentration profiled wafer ~~within a nucleation temperature range bounded by T_U and~~ from an upper nucleation temperature T_U to a lower nucleation temperature T_L that is between about 1050 and about 1080 °C wherein the difference between T_U and T_L is no greater than about 15 °C and generally decreases as T_U and T_L increase for a nucleation duration t_n that is between about 10 and about 15 seconds to form oxygen precipitate nucleation centers in the bulk layer that are incapable of being dissolved at temperatures

below about 1150 °C and a region free of oxygen precipitate nucleation centers in the surface layer.

22. (Currently amended) A process for the preparation of a single crystal silicon wafer having a controlled oxygen precipitation behavior, the process comprising the steps of:

selecting a wafer sliced from a single crystal silicon ingot grown by the Czochralski method comprising a front surface, a back surface, a central plane between the front and back surfaces, a front surface layer which comprises the region of the wafer between the front surface and a distance D measured from the front surface and toward the central plane, a bulk layer which comprises the region of the wafer between the central plane and the front surface layer and a native oxide layer on the front and back surfaces;

heating the wafer to an annealing temperature T_A to form crystal lattice vacancies in the front surface and bulk layers while exposing the wafer to an atmosphere comprising nitrogen or a nitrogen-containing gas;

cooling the heated wafer from T_A to an upper nucleation temperature T_U at a rate R to form a vacancy concentration profile in the wafer wherein the peak density of vacancies is in the bulk layer with the concentration generally decreasing from the location of the peak density in the direction of the front surface of the wafer; and

~~maintaining~~ controlling cooling of the vacancy concentration profiled wafer ~~within a nucleation temperature range bounded by T_U and~~ from an upper nucleation temperature T_U to a lower nucleation temperature T_L for a nucleation duration t_n to form oxygen precipitate nucleation centers in the bulk layer that are incapable of being dissolved at temperatures below about 1150 °C and a region free of oxygen precipitate nucleation centers in the surface layer.